

Remarks/Arguments

The Rejection of Claims 17, 25, 28, 32, 33, and 39 under 35 U.S.C. §103(a)

The Examiner rejected Claims 17, 25, 28, 32, 33, and 39 under 35 U.S.C. §103(a) as being obvious and unpatentable over United States Patent No. 5,184,012 (Yamamoto) in view of Japanese Patent No. 5-107037 (Hara et al.). Applicant respectfully traverses the rejection.

Claim 17

Yamamoto does not automatically modify an illumination diameter

Amended Claim 17 recites: “wherein said illumination optical system is operatively arranged to automatically modify said illumination diameter.” Automatic modification of illumination diameter is extremely advantageous. A user of the microscope with such a feature does not need to be concerned with the optimum illumination of the sample, since the system automatically adjusts the illumination with respect to the objective being positioned in the illumination beam path. Thus, the limitation optimizes the optical system of a subject microscope and does not unnecessarily waste illumination power, a consideration of paramount importance in microscopy.

The Examiner has cited col. 4, lines 35+ and col. 5, lines 45+ as evidence that Yamamoto teaches the above limitation of Claim 17. Applicant can find no teaching or even suggestion to make the diameter modification automatic.

Col. 4, lines 35-40: “The optical beam-diameter changing system enlarges and reduces the diameter of the incident beam to a desired length. The beam, the diameter of which is adjusted to a predetermined length by the optical beam-length changing system,...” Yamamoto teaches diameter modification, but no teaching regarding an automatic modification.

Col. 5, lines 23-38: “As shown in FIGS. 3A and 3B, the optical beam-diameter changing system 30 comprises convex lenses 41 and 42 and concave lenses 43 and 44. The lenses 42 and 43, facing each other, are continuously movable within optical axis regions X1-X2 and X3-X4, respectively. In the optical beam-diameter changing system 30, when the lenses 43 and 42 are

respectively located at the points X1 and X4, as shown in FIG. 3A, the incident beam is converged by the lens 41 and the diameter of the beam is reduced only slightly by the lens 41, since the distance between the lenses 41 and 43 is short. However, since the distance between the lenses 42 and 43 is long, the beam is expanded in the region X1-X4. As a result, the beam going out the lens 44 has a diameter D1 (=2.times.d) longer than the diameter D (=2.times.d) of the incident beam." This excerpt teaches the components and basic function, but is silent regarding an automatic adjustment of diameter.

Col. 4, lines 39-58: "In contrast, when the lenses 43 and 42 are respectively located at the points X2 and X3, the diameter of the incident beam is considerably reduced in a region between the lenses 41 and 43. As a result, the beam going out the lens 44 has a diameter D2 (=2.times.d2) shorter than the diameter D.

In this manner, even if the diameter of the incident beam is unchanged, the diameter of the beam going out of the system 30 can be continuously changed by moving the lenses 43 and 42.

As described above, according to this embodiment, the diameter of a light beam emitted from the light source is adjusted substantially the same as that of the pupil of the objective lens A by means of the optical beam-diameter changing system 30.

After the diameter of the beam is adjusted in this manner, the beam is applied via the movable mirror 33 to the first optical deflecting system 34, reflected by the same and then applied to the second optical deflecting system 35." Yamamoto adjusts diameter, but no teaching of the adjustment being automatic.

Yamamoto does not teach, suggest, or motivate an automatic adjustment of an illumination diameter.

Nor does Hara teach, suggest, or motivate an automatic adjustment of an illumination diameter.

Yamamoto and Hara fail to teach, suggest, or motivate all the elements of Claim 17. Therefore, Claim 17 is patentable over the cited references. Claims 25, 28, 32, 33, and 39, dependent from Claim 17, enjoy the same distinction with respect to the cited references.

Applicant courteously requests that the rejection be removed.

The Rejection of Claims 22 and 23 under 35 U.S.C. §103(a)

The Examiner rejected Claims 22 and 23 under 35 U.S.C. §103(a) as being obvious and unpatentable over United States Patent No. 5,184,012 (Yamamoto) in view of Japanese Patent No. 5-107037 (Hara et al.) and further in view of United States Patent No. 5,140,458 (Takagi et al.). Applicant respectfully traverses the rejection.

Applicant has shown that Claim 17 is patentable over Yamamoto and Hara. Takagi teaches an optical illuminating and observing apparatus having a first drive system for changing the magnification of the apparatus and a second drive system for changing the illuminating field of the apparatus and does not cure the defects of Yamamoto and Hara. Therefore, Claim 17 is patentable over Yamamoto and Hara in view of Takagi. Claims 22 and 23, dependent from Claim 17, enjoy the same distinction with respect to the cited references.

Applicant courteously requests that the rejection be removed.

The Rejection of Claim 29 under 35 U.S.C. §103(a)

The Examiner rejected Claim 29 under 35 U.S.C. §103(a) as being obvious and unpatentable over United States Patent No. 5,184,012 (Yamamoto) in view of Japanese Patent No. 5-107037 (Hara et al.) and applied to Claim 17 with or without United States Patent No. 5,054,926 (Dabbs et al.). Applicant respectfully traverses the rejection.

Applicant has shown that Claim 17 is patentable over Yamamoto and Hara. Dabbs teaches a distance measuring device and does not cure the defects of Yamamoto and Hara. Therefore, Claim 17 is patentable over Yamamoto and Hara with or without Dabbs. Claim 29, dependent from Claim 17, enjoys the same distinction with respect to the cited references.

Applicant courteously requests that the rejection be removed.

The Rejection of Claims 34-36 under 35 U.S.C. §103(a)

The Examiner rejected Claims 34-36 under 35 U.S.C. §103(a) as being obvious and unpatentable over United States Patent No. 5,184,012 (Yamamoto) in view of Japanese Patent No. 5-107037 (Hara et al.) and further in view of United States Patent No. 4,530,578 (Kato).

Applicant has shown that Claim 17 is patentable over Yamamoto and Hara. Kato teaches a variable magnification observation apparatus and does not cure the defects of Yamamoto and Hara. Therefore, Claim 17 is patentable over Yamamoto and Hara in view of Kato. Claims 34-36, dependent from Claim 17 enjoy the same distinction with respect to the cited references.

Applicant courteously requests that the rejection be removed.

The Rejection of Claim 37 under 35 U.S.C. §103(a)

The Examiner rejected Claims 34-36 under 35 U.S.C. §103(a) as being obvious and unpatentable over United States Patent No. 5,184,012 (Yamamoto) in view of Japanese Patent No. 5-107037 (Hara et al.) and further in view of Kato as applied to Claim 34 with or without United States Patent No. 5,672,880 (Kain). Applicant respectfully traverses the rejection.

Applicant has shown that Claim 17 is patentable over Yamamoto and Hara. Kato was discussed above with respect to Claim 17. Kain teaches a fluorescence imaging system and does not cure the defects of Yamamoto and Hara. Therefore, Claim 17 is patentable over Yamamoto and Hara in view of Kato with or without Kain. Claim 37, dependent from Claim 17, enjoys the same distinction with respect to the cited references.

Applicant courteously requests that the rejection be removed.

The Rejection of Claim 38 under 35 U.S.C. §103(a)

The Examiner rejected Claim 38 under 35 U.S.C. §103(a) as being obvious and unpatentable over United States Patent No. 5,184,012 (Yamamoto) in view of Japanese Patent No. 5-107037 (Hara et al.) and further in view of United States Patent No. 5,404,238 (Dreessen et al.). Applicant respectfully traverses the rejection.

Claim 38 has been amended to recite the same limitation added to Claim 17: "wherein said illumination optical system is operatively arranged to automatically modify said illumination diameter." Applicant has shown that Claim 17 is patentable over Yamamoto and Hara. Dreessen discloses a Xenon flashtube as the light source and does not cure the defects of Yamamoto and Hara. Therefore, Claim 38 is patentable over Yamamoto and Hara in view of Dreessen.

Applicant courteously requests that the rejection be removed.

Conclusion

Applicant respectfully submits that all pending claims are now in condition for allowance, which action is courteously requested.

Respectfully submitted,



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